Al 1 s/987

Preprint from the 1987

BUREAU OF MINES MINERALS YEARBOOK

The Mineral Industry of Alaska

UNITED STATES DEPARTMENT OF THE INTERIOR

I 28.37/a 2:

READEX FICHE

best copy available

UNITED STATES DEPARTMENT OF THE INTERIOR • Manuel J. Lujan, Jr., Secretary

BUREAU OF MINES • T S Ary, Director

This publication is a chapter from the current Bureau of Mines Minerals Yearbook, comprising *Volume I, Metals and Minerals; Volume II, Area Reports: Domestic; Volume III, Area Reports: International.* The separate volumes of the Yearbook are sold by the Superintendent of Documents, Washington, D.C. 20402.

The Mineral Industry of Alaska

This chapter has been prepared under a Memorandum of Understanding between the Bureau of Mines, U.S. Department of the Interior, and the Divison of Geological and Geophysical Surveys, Alaska Department of Natural Resources, for collecting information on all nonfuel minerals.

By Tom L. Pittman[1]

The value of nonfuel mineral production reported in Alaska in 1987 was $125.3 million; in 1986 the value was $91.5 million. The increase was due mainly to the increased production of gold and increased value of construction sand and gravel. Alaska ranked 40th in the value of nonfuel mineral production, improved from 42d in 1986. The increased gold production was due to expanded operations by several of the large placer mines. The number of mechanized placer gold mines was about 200, almost the same as in 1986, but about 25% below the number of mines operating in 1985.

The lawsuits against the U.S. Bureau of Land Management (BLM) and the National Park Service contesting their management practices and oversight of mining operations on Federal lands continued to be of major concern to many placer operators. The U.S. Army Corps of Engineers was requiring permits for mining operations on wetlands and streams because of a request by the U.S. Fish and Wildlife Service and the threat of a lawsuit by an environmental organization. A legal challenge to the mining location and leasing system on State lands was another major concern. Water-quality guidelines and regulations of the U.S. Environmental Protection Agency and of the Alaska Department of Environmental Conservation caused continuing problems, especially for small-scale operators.

Table 1.—Nonfuel mineral production in Alaska[1]

Mineral	1985		1986		1987	
	Quantity	Value (thousands)	Quantity	Value (thousands)	Quantity	Value (thousands)
Gem stones	NA	e$60	NA	$25	NA	$86
Gold (recoverable content of ores, etc.) troy ounces	44,733	14,210	48,271	17,775	86,548	38,769
Sand and gravel (construction) thousand short tons	e29,000	e63,000	27,762	61,954	e27,200	e73,400
Silver (recoverable content of ores, etc.) thousand troy ounces	W	W	W	W	10	70
Stone (crushed) thousand short tons	1,907	8,535	e2,000	e8,500	2,033	8,945
Combined value of cement (portland), tin, and values indicated by symbol W	XX	4,164	XX	3,226	XX	4,010
Total	XX	89,969	XX	91,480	XX	125,280

eEstimated. NA Not available. W Withheld to avoid disclosing company proprietary data; value included with "Combined value" figure. XX Not applicable.

[1]Production as measured by mine shipments, sales, or marketable production (including consumption by producers).

Table 2.—Nonfuel minerals produced in Alaska in 1986, by region[1]

Region	Minerals produced in order of value
Bristol Bay	Sand and gravel (construction)
Cook Inlet-Susitna	Gold, sand and gravel (construction), cement, silver
Copper River	Sand and gravel (construction)
Kenai Peninsula	Do.
Seward Peninsula	Gold, tin, silver
Southeastern Alaska	Sand and gravel (construction)
Yukon River	Sand and gravel (construction), gold, silver
Undistributed[2]	Stone (crushed), gem stones

[1]No production of nonfuel mineral commodities was reported for regions not listed.
[2]Data not available by region for minerals listed.

Trends and Developments.—There was a sharp increase in staking of new mining claims in 1987, following a drop from 1985 to 1986. There were 6,773 claims in 1985, 5,315 in 1986, and 8,276 in 1987. Most of the new claims were located for precious metals. Total active claims dropped from 81,782 in 1985 to 68,348 in 1987, indicating abandonment of many base-metal claims. The search for platinum-group metals in placer and lode deposits continued, and interest in lode gold and silver deposits increased. There was more activity in the exploration and development of placer deposits for extraction by underground mining methods.

The results of State surveys of the mining industry were published in Alaska's Mineral Industry, 1987—Special Report 41.[2] This report was produced and distributed by the Alaska Department of Natural Resources, Division of Geological and Geophysical Surveys (DGGS) and Division of Mining; and the Department of Commerce and Economic Development, Division of Business Development. State surveys show nonfuel mineral exploration expenditures in 1987 almost double the expenditures in 1986. Southeastern, Eastern Interior, and South-Central regions were the most active. Expenditure on exploration in 1987 was estimated at about $14.6 million, up from about $8.9 million in 1986. Development in 1987 was about $99.9 million, almost four times the $23.8 million estimate for 1986. The 1987 development outlay was the largest in any year in the history of the Alaska mineral industry. Principal development expenditures were in the Northern, Southeastern, and Eastern Interior regions.

State surveys estimated nonfuel mineral production at $159.7 million in 1987, with the value of metal production exceeding the value of industrial mineral production for the first time in 20 years. Gold production was estimated to have increased more than 70% over that of 1986. In the Western region, a large offshore dredge, two upland floating dredges, and a large mechanized sluicing operation accounted for the largest increase in gold output. There were moderate increases in gold production in the South-Central and Eastern Interior regions. Continued development of the Red Dog zinc-lead mine north of Kotzebue and the Greens Creek silver-gold-zinc-lead mine on Admiralty Island were among the most important mining developments in the State.

Employment.—The nonfuel mineral industries employed 3,172 people in 1987, an increase from 2,950 people in 1986. The State employment statistics include seasonal and year-round jobs. Distribution of these people are as follows: mechanized gold mining, 39%; construction sand and gravel, 26%; mineral development, 13%; recreational mining and assessment work, 7%; stone, 6%; coal, 4%; mineral exploration, 3%; and miscellaneous lode and other mineral production, 2%.

Exploration Activities.—Exploration for precious metals deposits was widespread in Alaska. Most of the major projects were in historic mining areas that were formerly the most significant producers of placer or lode gold.

Nonfuel mineral exploration expenditures were $14.6 million, up from $8.9 million in 1986, according to the State surveys. About 80% of the exploration money was used in the search for precious metals. Lode gold activity exceeded placer activity in each of the seven regions, with expenditures of about $5 million in the Southeastern, $1.5 million in the Eastern Interior, $1.3 million in the South-Central, and $1.1 million in the Western region. About 31,300 person-days of employment were provided by nonfuel exploration.

Nonfuel mineral drilling footage in 1987 was 295,300, a decrease from the 1986 total of 309,600 feet drilled. Placer drilling was 180,000 feet in 1987, down from 259,400 feet in 1986. The decrease was mostly due to the need for less thaw-field drilling by Alaska Gold Co. ahead of its Nome dredges after the extensive drilling in 1986. Placer exploration drilling increased from 32,000 feet in 1986 to 50,250 feet in 1987, about evenly divided between the Seward Peninsula

and the Valdez Creek Mine east of Cantwell. Alaska Gold drilled about 130,000 feet of thaw-field holes to keep unfrozen ground ahead of its two gold dredges. Hardrock drilling increased to 115,100 feet, from the 50,200 feet drilled in 1986. More than 96% of the 1987 footage was drilled on precious metals deposits. Major drilling projects were carried out by 16 companies, up from 8 companies in 1986. About 36,800 feet was drilled in Southeastern Alaska and 29,000 feet in Interior Alaska.

Legislation and Government Programs.—The 52-mile Pioneer Road from the portsite on the Chukchi Sea to the Red Dog Mine was contracted to Enserch and financed by the Alaska State Industrial Development and Export Authority. The State revenue bonds will be repaid by Cominco Alaska Inc. This road will be upgraded to State design standards in 1988 and become part of the DeLong Mountains Transportation System.

On March 30, the Governor assigned priority status to water-quality issues and directed the Commissioners of Natural Resources, Fish and Game, and Environmental Conservation to address Federal and State regulatory and legal problems that adversely affect the mining industry. Improved practices by mine operators and regulatory actions by State and Federal agencies had improved streamwater quality in most placer mining areas. About 97% of the placer mines met the Federal settleable solids standard of 0.2 milliliter per liter. The State turbidy standard of 5 nephelometric turbidity units was met by only a few placer mines with low amounts of clay and silt in their sluice feeds and stripped overburden.

More than 20 bills and resolutions of interest to the mineral industries were introduced in the first session of the 1987-88 legislature. The only bill passed and signed into law by the Governor would provide penalties for giving false information or making false reports. The other bills were carried over to the second session of the legislature.

A study group was formed by the Department of Environmental Conservation and the Alaska Miners Association to determine options available to implement water-quality regulations. Proposals by the study group and private groups have been referred to the Attorney General for compliance with the Clean Water Act. A lawsuit by the Sierra Club against BLM resulted in an injunction by a Federal judge in the U.S. District Court for Alaska early in 1987. The order prohibited BLM from permitting any mining operation that disturbed more than 5 acres in the Beaver Creek, Birch Creek, Chatinika River, and Fortymile River drainages. Preparation of environmental impact statements on these drainages by BLM may take up to 3 years and halt the larger mining operations in these areas until the injunction is withdrawn.

The Army Corps of Engineers will require permit applications from most mining operators for activity in the 1988 season. The Corps will determine if the applicant will be operating on lands under its jurisdiction and proceed with permitting if wetlands or streams are affected. Many miners were concerned that permits would be available too late for them to mine in the 1988 season. It was unknown how much of the muskeg that covered much of the surface of the State would be officially classified as wetlands by the Corps.

The U.S. Minerals Management Service started preparations to lease about 350,000 acres of offshore Federal lands in Norton Sound from 3 to 12 miles south of the Seward Peninsula and from about 52 miles east to 14 miles west of Nome. The exploration of some of the State offshore lands and the successful recovery of placer gold from these lands by the "BIMA" bucketline dredge had created interest in the area. Examination and geologic mapping of the Steese-White Mountains National Recreation Area was completed by the DGGS, under contract to the U.S. Geological Survey (USGS). A report released late in 1987 indicated resources of gold, silver, tin, and rare-earth elements. Placer resources in the Steese Recreation Area were evaluated by the U.S. Bureau of Mines. The Bureau and the DGGS continued geologic mapping and mineral examinations in the Haines and Skagway areas. The Bureau continued work in the Juneau mining district and "Gold Belt," the Valdez Creek project area, and on various strategic and critical minerals projects.

REVIEW BY NONFUEL MINERAL COMMODITIES

METALS

Gold.—Gold production reported to the U.S. Bureau of Mines in 1987 was 86,548 troy ounces valued at $38.8 million. This production, reported by 15 placer and 2 lode operators, was believed to be less than 40% of actual 1987 production. State surveys estimated gold production at about 229,700 ounces valued at $104.5 million, up from 160,000 ounces valued at $60.8 million in 1986. State production estimates for 1987 are "based on data compiled from 177 questionnaires returned from private companies, responses to a telephone survey of 35 companies that mine sand and gravel and 5 that extracted stone, and information provided by the Bureau of Mines, USGS, University of Alaska, precious metal refiners, and consultants," according to Special Report 41. The gold was recovered by 202 placer mines and 3 small lode mines, compared with 196 mechanized placer mines in 1986. The 10 largest placer mines produced about 58% of the gold in 1987.

The State estimated 79 placer and 2 lode mines produced 50,696 ounces of gold in 1987 in the Eastern Interior region, employing about 380 people. The largest producers were GHD Resources Partners Ltd. on Eagle Creek and V. F. Halverson with M. D. Wolters on Mammoth Creek, in the Circle district.

The Western region reported 46 mining operations that produced about 44% of the total gold in 1987. About 70% of the statewide increase over 1986 production occurred in this region. The Western Gold Exploration and Mining Co. (WestGold) operated its 33-cubic-foot bucketline dredge, the BIMA, on State offshore leases near Nome. From June 16 to November 23, when it went to Nome for the winter, the dredge recovered about 36,000 ounces of gold. WestGold employed 124 people for production and from 65 to 70 during the winter layup for repair and maintenance. Alaska Gold Co. operated two 9-cubic-foot bucketline dredges upland on old raised beaches, employing 133 people. The company successfully stripped frozen overburden in 1987 and planned to continue the practice. Gold production in 1987 was about double that in 1986 when one dredge did not operate.

Windfall Gold Mining Corp. mined on the upland Third Beach, about 3 miles north of Nome, on ground leased from Alaska Gold. Scrapers and loaders were used to work a complex paystreak that could not be mined in a former operation by Alaska Gold's Dredge No. 3. Windfall also produced -4+1/2-inch gravel from tailings for sale to various users.

Several other fairly large-scale placer mines, and many small mines, operated on the Seward Peninsula, in the Ruby-Poorman District, Kaihyu Hills, Tolstoi, and other areas.

In the Fairbanks District, 19 placers and 2 lode mines produced an estimated 21,119 ounces of gold, according to the State survey. Placer mines employed 158 people and 53 worked at lode mines. The largest operators in the district were Polar Mining Inc. on Sheep Creek and Sphinx America Inc. on Fish and Fairbanks Creeks. Both operators drilled, blasted, and stripped frozen overburden during the winter. The heap-leach mine on the Ryan Lode west of Fairbanks produced about 6,100 ounces of dore bullion, according to Citigold Alaska, recovering about 40% of the gold on its two pads; leaching was to continue in the 1988 season. The Tenderfoot District reported minor production from two drift mines and three surface placers. Alaska Unlimited Co. operated the largest placer mine in the Bonnifield District south of Fairbanks. About 20 formerly producing placers were idle in the Coal Creek, Kantishna, and Woodchopper areas. The National Park Service could not issue plans of operation until individual and cumulative environmental impact assessments were completed, as required by the Sierra Club court case.

In the South-Central region, the State estimated that 29 placer mines recovered 46,460 ounces of gold, employing about 250 people. The largest mine was operated by Valdez Creek Mining Co. Inc. east of Cantwell. Gold production in 1987 was 33,277 ounces. The company had an enclosed washing plant and operated all year with about 135 people. It reported it could operate its washing plant, haulage, and water recycling units until the temperature reached about -35° F. At that point, operating costs would be too high. The mine was the top gold producer in the State in 1987. Two mines ceased operation in the Wrangell-St. Elias National Park because the National Park Service could not issue permits.

The Southwestern region produced 20,000 ounces of gold from 36 placer mines, as reported to the State. About 130 persons were employed. Water shortages plagued some operators. Placers were worked on Ganes, Spruce, Anvil, Ester, and Yankee Creeks in the Innoko District, and on Flat Creek in the Iditarod District. The largest placer in the Aniak District was operated by Tuluksak Dredging Inc., whose 5-1/2-cubic-foot bucketline dredge dug and washed 5,000 cubic yards per day for 140 days, from June to the last week in October.

The Northern region reported eight companies produced 7,256 ounces of gold, almost double the mines and production in 1986. These companies mined on Tobin Creek, Hammond River, Gold Creek, Linda Creek, and Archibald, Nolan, and Vermont Creeks.

The State reported five operators produced 3,400 ounces of gold in the Southeastern and Alaska Peninsula regions. Gulf of Alaska strandline beach sands were processed to recover gold and a garnet concentrate. The garnet product may have commercial promise as an abrasive. A gold heap-leach operation on the south side of Ester Dome, east of Fairbanks, was being developed. Also on Ester Dome, Citigold Alaska continued development of a heap-leaching operation. Already completed were two lined 50,000-ton leaching pads, an agglomerating plant, and an activated-carbon precipitation and gold recovery unit. About 6,100 ounces of gold-silver bullion was produced in the 1987 season, and leaching was to continue in the summer of 1988. Citigold Alaska claimed drill-indicated reserves of 2 million tons of ore averaging 0.13 ounce of gold per ton along a strike length of 2,000 feet.

Placer gold development expenditures reported by the State were $1.5 million, down from $11 million reported in 1986. Most of the expenditures were for new recovery plants, water clarification and recycling systems, camps, and some overburden stripping. Significant developments occurred in the South-Central, Eastern Interior, and Western regions. There was an increase in interest and activity in drift mining. Ten companies reported activities ranging from portal construction, shaft sinking, and development drifting in drilled reserves, through experimenting with various mining methods to determine economic viability. Five of these companies were in the Fairbanks mining district, two in the Wiseman District, and one each in the Innoko, Richardson, and Livengood Districts.

Tolstoi Mining Co. continued underground development of platinum-gold reserves and reported some production at its mine on Boob Creek in the Innoko District, using steam points for thawing permafrost.

Other Metals.—The Red Dog zinc-lead mine project expended or committed about $140 million toward development in 1987, about 40% of the estimated 4-year development-and-equipment cost. With the pioneer road completed, camp facilities were installed at the minesite. Monies were obligated for construction, mine and mill equipment contracts, and other development services and purchases. About 400 people worked on the road and at the project site in 1987. In 1988, from 350 to 400 people would be working on construction activities. Green Construction Co. stored construction equipment at the port in 1987 and would move its units to the minesite in 1988. Green contracted to build tailings and freshwater dams, prepare the millsite, construct roads from the airstrip to the minesite, and start stripping the ore body.

The Red Dog Mine was owned by the NANA Regional Corp. and operated by Cominco Alaska. The mine is situated about 90 miles north of Kotzebue, in the Northern region. Published reserves for the open pit ore body were 85 million tons averaging 17.1% zinc, 5.0% lead, and 2.4 ounces of silver per ton. The proposed milling rate was about 6,000 tons per day, producing about 550,000 tons of zinc concentrate, 100,000 tons of lead concentrate, and 50,000 tons of polymetallic concentrate per year. Cominco Alaska had placed long-term contracts for processing concentrates at smelters in Canada, Europe, and Asia. Production was scheduled to start early in 1990 and concentrate shipments to begin that summer.

The Greens Creek Mining Co. approved full development of the Greens Creek silver-gold-zinc-lead mine in June. Planned production was 1,000 tons per day from an underground mine, using drift-and-fill and cut-and-fill stoping methods. In 1986, a 9-mile road was constructed from the portsite at Hawk Inlet to the mine and millsite on Greens Creek, and a main haulage adit was started. In 1987, a 5-mile road was built from Youngs Bay on the east side of Admiralty Island to Hawk Inlet on the west side of the island. Employees would commute from Juneau to Youngs Bay by company ferry and by bus to the mine. The mine is

about 18 air miles from Juneau. The haulage adit and drifts were advanced about 2,500 feet, and about 3,000 feet of diamond drilling was completed from underground stations on that level. Production was scheduled to start early in 1989 at 1,000 tons per day. The flotation mill would have a gravity circuit to recover coarse gold. Concentrates would be shipped out to various smelters. The operating work force would be about 200.

Development costs were estimated at $105 million. Published proven recoverable reserves were 3.5 million tons averaging 24 ounces of silver per ton, 0.18 ounce of gold per ton, 9.7% zinc, and 3.9% lead, with small amounts of copper. Greens Creek, the operator, was a subsidiary of BP Minerals America Inc. The joint-venture partners were BP (53.1%), Hecla Mining Co. (28%), CSX Oil and Gas Corp. (12.6%), and Exalas Resources (6.3%). Amselco Minerals Inc., the former operator, was a subsidiary of BP North America Inc. and was absorbed by BP.

To promote local hire and a stable work force, Greens Creek and the University of Alaska Southeast established training classes in the skills needed by the mining and milling operations. More than 100 people would be trained in Juneau for entry-level jobs in 1987 and 1988. The Greens Creek operation is situated in a nonwilderness portion of the Admiralty National Mounment and in the Tongass National Forest. It is a good example of a mining operation that has developed successfully within the limits of strict environmental regulations and constraints.

A small amount of mercury was produced by James Wiley at the Mountain Top Mine, about 35 miles southwest of Sleetmute. Silver was produced as a natural alloy with placer and lode gold. The State canvass reported 1987 production at 54,300 ounces, valued at $390,960, an increase from 24,000 ounces valued at $134,400 reported in 1986.

Lost River Mining recovered placer tin in a cassiterite concentrate from Cape Creek, on the Seward Peninsula. Production was reported to the U.S. Bureau of Mines and to the State. In Special Report 41, the State published a 1987 production figure of about 288,000 pounds of equivalent refined tin, valued at $460,000. Reported tungsten production in 1987 was listed as 160 short ton units valued at $11,400; in 1986, it was 120 short ton units worth $22,800.

INDUSTRIAL MINERALS

Sand and Gravel (Construction).—Construction sand and gravel production is surveyed by the U.S. Bureau of Mines for even-numbered years only; this chapter contains actual data for 1986 and estimates for 1985 and 1987. Data for odd-numbered years are based on annual company estimates.

Construction sand and gravel production was estimated at about 27.2 million short tons valued at $73.4 million. Production in 1986 was 27.8 million tons valued at $62 million. The State survey listed production in 1987 at 16.7 million tons valued at $42.7 million, down from 20.9 million tons worth $75.7 million in 1986. Production and value of sand and gravel were influenced by intensified competition among producers, a weak Alaskan economy, and reduced infrastructure development on Alaska's North Slope oilfields. North Slope oil-related activities listed only three drill pads constructed and minor road and other projects using about 660,000 tons of sand and gravel. Enserch Alaska Services mined about 2.8 million tons of aggregate, borrow, and shot rock; 110,000 tons of sand; and 2,400 tons of riprap to construct the Red Dog Mine road, according to the State survey. State and Federal road projects consumed about 40% of the sand and gravel produced in 1987. In the Eastern Interior region, 14 producers reported 6 million tons of production in 1987, a decrease from 7.1 million tons in 1986. Construction for the U.S. Army Light Infantry Division at Fort Wainwright, near Fairbanks, helped sustain production in this region.

The South-Central region produced about 4.3 million tons of construction sand and gravel, considerably lower than the 5.4 million tons in 1986. Consumption decreased about 50% in the Anchorage area but increased on outlying road rerouting and construction projects. Anchorage Sand and Gravel Co.'s Palmer pit supplied about one-half of the 1.8 million tons of sand and gravel hauled by the Alaska Railroad. About 862,0000 tons of sand and gravel were mined in the Southeastern region, up from about 510,000 tons mined in 1986. Nearly 360,000 tons of mixed aggregate and fill were used for construction projects at the Greens Creek Mine. About 420,000 tons of borrow and aggregate were used by the State for road maintenance and allied purposes.

Stone.—Stone production is surveyed by the U.S. Bureau of Mines for odd-numbered years only; this chapter contains actual data for 1985 and 1987 and estimates for 1986. Data for even-numbered years are based on annual company estimates.

Crushed and broken stone reported to the U.S. Bureau of Mines in 1987 was 2 million short tons valued at $8.9 million, little changed from that of 1986. Values were higher for construction in several remote areas.

Table 3.—Alaska: Crushed stone[1] sold or used by producers in 1987, by use

(Thousand short tons and thousand dollars)

Use	Quantity	Value
Coarse aggregate (+1-1/2 inch): Riprap and jetty stone	136	501
Fine aggregate (-3/8 inch): Stone sand, bituminous mix or seal	W	15
Coarse and fine aggregates:		
Graded road base or subbase	94	297
Unpaved road surfacing	1,425	6,336
Crusher run or fill or waste	58	264
Other construction[2]	134	596
Special: Other unspecified[3]	205	936
Total	[4]2,033	8,945

W Withheld to avoid disclosing proprietary data; included with "Other Construction."
[1]Includes limestone, granite, sandstone, traprock, and miscellaneous stone.
[2]Includes macadam, filter stone, concrete aggregate (coarse), bituminous aggregate (coarse), railroad ballast, stone sand (concrete), stone sand (bituminous mix or seal), and data indicated by symbol W.
[3]Includes production reported without a breakdown by end use and estimates for nonrespondents.
[4]Data do not add to total shown because of independent rounding.

Other Industrial Minerals.—Anchorage Sand and Gravel continued to operate its cement plant, using domestic clinker and gypsum shipped to Anchorage. The company also operated a modern concrete-block plant and ready-mixed concrete facilities. The State reported horticultural peat production in 1987 at 46,000 cubic yards valued at $299,000. In 1986, the volume reported was 50,000 cubic yards worth $350,000. About 60% of the peat was produced by Great Northern Landscaping of Fairbanks. Gem stones produced in Alaska were jade, soapstone, epidote crystals, petrified wood, and various other minerals and materials in minor amounts.

[1]State Mineral Officer, Bureau of Mines, Juneau, AK.
[2]Bundtzen, T. K., C. B. Green, R. J. Peterson, and A. F. Seward. Alaska's Mineral Industry, 1987. Div. of Geol. and Geophys. Surv., Spec. Rep. 41, 1988, 69 pp.

Table 4.—Principal producers

Commodity and company	Address	Type of activity	Region
Cement (portland):			
Anchorage Sand and Gravel Co.	1813 East First Ave. Anchorage, AK 99501	Grind and blend.	Cook Inlet-Susitna.
Gold:			
Alaska Gold Co.	Box 640 Nome, AK 99762	Placer-dredge.	Seward Peninsula.
Alaska Placer Development Inc. (Hanneman-Knaebel Partnership).	Box 81467 Fairbanks, AK 99708	Placer.	Yukon River.
GHD Resources Partners Ltd.	Box 10499 Fairbanks, AK 99710	do.	Do.
Valdez Creek Mining Co. Inc.	610 East 4th Ave. Anchorage, AK 99507	do.	Do.
Western Gold Exploration and Mining Co.	Box 1210 Nome, AK 99762	Placer-dredge.	Seward Peninsula.
Windfall Gold Mining Corp.	Box 1920 Nome, AK 99762	Placer.	Do.
Sand and gravel (construction):			
Anchorage Sand and Gravel Co.	1813 East First Ave. Anchorage, AK 99501	Pit.	Cook Inlet-Susitna.
Central Paving Products.	1301 East 64th Ave. Anchorage, AK 99501	Pit.	Do.
Fairbanks Sand and Gravel Co.	Box 686 Fairbanks, AK 99707	Pit.	Yukon River.
Juneau Ready-Mix Inc.	Box 270 Juneau, AK 99802	Pit.	Southeastern Alaska.
U.S. Bureau of Land Management.	Box 13, 701 C St. Anchorage, AK 99513	Pit.	Various.

Table 4.—Principal producers —Continued

Commodity and company	Address	Type of activity	Region
Stone			
Alaska Railroad Corp	Box 107500 Anchorage, AK 99510	Pit	Various
Aleutian Constructors	3909 Arctic Blvd Anchorage, AK 99501	Quarries	Cook Inlet-Susitna
Associated Sand & Gravel Co Inc	Box 3699 Juneau, AK 99803	do	Southeastern Alaska
U.S. Forest Service, Region 10	Box 1628 Juneau, AK 99802	do	Various
South Coast Inc	Box 8620 Ketchikan, AK 99901	Quarry	Southeastern Alaska
Yutan Construction Co	Box 1775 Fairbanks, AK 99707	do	Yukon River
Tin			
Lost River Mining	Box 411 Nome, AK 99672	Placer	Seward Peninsula

☆ U.S. GOVERNMENT PRINTING OFFICE: 1989—242-377 81315